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EXAMINER
ROBERTS, JESSICA M

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/684,865	HAMZA ET AL.
	Examiner	Art Unit
	JESSICA ROBERTS	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/04/2008*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-30* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgement of Amendment

Applicants amendment filed on 12/04/2008 overcome the following objection(s)/rejection(s):

The rejection of claims 1-26 and 28-30 under 35 U.S.C. 112 second paragraph as being indefinite has been withdrawn in view of Applicants amendment.

The objection to claims 1-26 and 28-30 under 37 CFR 1.75(d) has been withdrawn in view of Applicants amendment.

Response to Arguments

1.   Applicant's arguments filed 08/12/2008 have been fully considered but they are not persuasive.

2.   As to applicants argument regarding the highlighting of color in images does not provide a teaching of a selection of a portion of a frame with color distribution that does not represent any motion of interest.

The Examiner respectfully disagrees. Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at

a given time to be considered background, it is clear to the examiner that Flickner

teaches to have a portion of the frame that is stationary represented with a color

distribution associated with a lack of motion as a condition, which reads upon the

claimed limitation); wherein the plurality of the frames comprises a selected portion of a

frame with the first pixel color distribution and another portion of the frame with a

second pixel color distribution (Flickner teaches in the first stage, a temporal median

filter is applied to several seconds of video (typically 20-40 seconds) to distinguish

"moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels

corresponding to stationary objects) by monitoring color and assuming that a color that

predominates at a given pixel over time is representative of the background image,

since any object corresponding to a foreground image is expected to move in and out of

the camera's view over time [0025]. Further disclosed is that shopping carts themselves

(and moving inanimate objects generally) may be detected using color (step 140). The

color of shopping carts may be modeled using a single 3-D Gaussian distribution, with

the pixel of any foreground silhouette pixel that has a color similar to that distribution

being classified as a pixel belonging to a shopping cart, [0032]. Since Flickner discloses

to determine moving pixel from stationary pixels by monitoring color and to predominate

at a given time to be considered background, it is clear to the examiner that Flickner

teaches to have a portion of the frame that is stationary represented with a color

distribution, and distinguish objects using a 3-D Gaussian distribution, with the pixel of

any foreground silhouette pixel that a color similar to distribution, it is clear to the

examiner that Flickner discloses to represent foreground and background pixel in

different color distributions associated with the presence of motion of the lack of motion

as a condition, which reads upon the claimed invention).

3.   As to Applicants argument regarding a prima facie case of obvious cannot be

met based on Gu.

4.   The Examiner respectfully disagrees. In response to applicant's arguments

against the references individually, one cannot show nonobviousness by attacking

references individually where the rejections are based on combinations of references.

See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800

F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5.   Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to

comply with the written description requirement. The claim(s) contains subject matter

which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention.

6.   Regarding claim 1, Applicant has claimed ..."first color pixel distribution is pre-

selected, prior to the receiving the frames of the area, as a function of the block of pixels

that does not represent any motion of interest ".

7.   Applicant does not have support for this claim limitation in the specification or
disclosure. Note: the Examiner directs the Applicant to pg. 13 [0045] of Applicants
original disclosure. Although Applicant has disclosed that the speed motion detection
algorithm represents portions of image in grey scale pixel when such portions are not
high in color content, or are not expected to have motion. These areas may be selected
on initialization based on knowledge of an operator, or may be selected based on real
time assessment of the scene. There is no positive recitation in application disclosure
for the following claim language: "prior to the receiving the frames of the area, as a
function of the block of pixels that does not represent any motion of interest".

8.   Claims 2-15 and 28-30 fail to remedy the issue as stated for claim 1. Thus,
claims 2-15 and 28-30 are too rejected as failing to comply with the written description
requirement.

9.   Re claim 16, Applicant has claimed ..."first color pixel distribution is pre-selected,
prior to the receiving the frames of the area, as a function of the block of pixels that
does not represent any motion of interest ". Applicant does not have support for this
claim limitation in the specification or disclosure.

10.   Re claims 15-26, fail to remedy the issue as stated for claim 16. Thus, claims 15-
26 are too rejected as failing to comply with the written description requirement.

11.   Re claim 27, Applicant has claimed ..."first color pixel distribution is pre-selected,
prior to the receiving the frames of the area, as a function of the block of pixels that
does not represent any motion of interest ". Applicant does not have support for this
claim limitation in the specification or disclosure.

Claim Rejections - 35 USC § 112

12.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

13.   Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention.

14.   Claim 27 is indefinite because it is unclear to the Examiner what is to be

considered "contextual information". As best understood by the Examiner, "contextual

information" is data relating to the frame such as motion or lack of motion.

Claim Objections

15.   The following is a quotation of 37 CFR 1.75(d) (1): The claim or claims must

conform to the invention as set forth in the remainder of the specification and the terms

and phrases used in the claims must find clear support or antecedent basis in the

description so that the meaning of the terms in the claims may be ascertainable by

reference to the description.

16.   Claims 27 is objected to under 37 CFR 1.75 (d) (1), as failing to conform to the

invention as set forth in the remainder of the specification.

17.   Claim 27 is objected to because there is no support for "contextual information".

Claim Rejections - 35 USC § 101

18.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim(s) **1-26 and 28-30** is/are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent[1] and recent Federal Circuit decisions[2] indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example the method of detecting motion in area, including the steps of "receiving", "using a high speed motion algorithm", and "using a high performance motion detection algorithm" is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally, or without a machine. The Applicant has not tied the method of detecting motion in an area with the steps of "receiving", "using a high speed motion algorithm", and "using a high performance motion detection algorithm" to a particular apparatus to perform the method as claimed.

Further regarding claim 1, which recites a method for detecting motion in an area, the method comprising: " using a high speed motion detection algorithm..", the

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[1] *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).
[2] *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

method is performed using an algorithm, taking the claim as a whole, the steps recited

is a mathematical algorithm, i.e. abstract idea. As claimed, it does not perform a

physical transformation, and/or produce a result that is useful, concrete and tangible

(See Interim Guidelines, Annex 5: Mathematical algorithms).

Re claim 2-15, and 28-30, fail to remedy the issue for claim 1, thus claims 2-15

and 28-30 are also rejected as being non statutory for being dependent upon claim 1.

Re claim 16, see the rejection and rejection made claim 1, which recites a

method for detecting motion in an area, the method comprising: " using a high speed

motion detection algorithm..", the method is performed using an algorithm, taking the

claim as a whole, the steps recited is a mathematical algorithm, i.e. abstract idea. As

claimed, it does not perform a physical transformation, and/or produce a result that is

useful, concrete and tangible (See Interim Guidelines, Annex 5: Mathematical

algorithms).

Re claims 17-26 fail to remedy the issue for claim 1, thus claims 17-26 are also

rejected as being non statutory for being dependent upon claim 16.

Re claim 27, which recites a system for detecting motion in a monitored area, the

system, which falls within one of the four statutory classes of subject matter. However,

taking the claim as a whole, the system is directed to a non-statutory subject matter,

i.e., carrier wave, [0021].

Claim Rejections - 35 USC § 103

19.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

20.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
         obviousness or nonobviousness.

21.   Claims 1-26, and 28-30 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Pavlidis et al., Urban Surveillance Systems 2001 in view of Monroe

et al., US-2003/0025599 in view of Flickner et al., US-2003/0107649A1 and further in

view of Gu et al., US-5, 874, 988 view of Parker et al., US-2003/0122942 A1.

        Regarding **claim 1**, Pavlidis discloses a method of detecting motion in an area

the method comprising: receiving frames of the area (Pavlidis, DETER, *Introduction* pg.

1478 and Fig. 3 and 4); using a high performance motion detection algorithm on

remaining frames to detect true motion from noise (Pavlidis, the connected component

algorithm filters out blobs with area less than 27 pixels as noise, *C. Multiple Hypotheses

Predictive Tracking* pg. 1448 and Section V). Pavlidis is silent in regards to using a high-

speed motion detection algorithm to remove frames in which a threshold amount of

motion is not detected; wherein a plurality of the frames comprises a selected portion of

a frame with a first pixel color distribution associated with a first <u>block of pixels</u> that

does not represent any motion of interest; and wherein the high speed motion detection

algorithm is configured such that the first color pixel distribution is pre-selected<u>, prior to

the receiving the frames of the area, as a function of the block of pixels that does not

represent any motion of interest</u>; wherein the plurality of the frames comprises a

selected portion of a frame with the first pixel color distribution associated with the first

<u>block of pixels</u> and another portion of the frame with a second pixel color distribution

associated with a second <u>block of pixels</u>. However, Monroe discloses a high-speed

motion detection algorithm to remove frames in which a threshold amount of motion is

not detected (only changes in the data need be transmitted; see page 4, paragraph

[0032], [0033]).

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to combine the method of Pavlidis with the teaching of Monroe for

providing computational efficiency and minimizing the amount of data to be transmitted

without any loss of critical change data (Monroe, [0054]).

Pavlidis (modified by Monroe) as a whole is silent in regards to wherein a

wherein the high speed motion detection algorithm represents the frames, wherein a

plurality of the frames comprises a selected portion of a frame with a first pixel color

distribution that does not represent any motion of interest; wherein the plurality of the

frames comprises a selected portion of a frame with the first pixel color distribution and

another portion of the frame with a second pixel color distribution.

However, Flickner teaches wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution associated with a first block of pixels that does not represent any motion of interest (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution associated with a lack of motion as a condition, which reads upon the claimed limitation); a function of the block of pixels that does not represent any motion of interest wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution and another portion of the frame with a second pixel color distribution (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's

view over time [0025]. Further disclosed is that shopping carts themselves (and moving inanimate objects generally) may be detected using color (step 140). The color of shopping carts may be modeled using a single 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that has a color similar to that distribution being classified as a pixel belonging to a shopping cart, [0032]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution, and distinguish objects using a 3-D Gaussian distribution, with the pixel of any foreground silhouette pixel that a color similar to distribution, it is clear to the examiner that Flickner discloses to represent foreground and background pixel in different color distributions associated with the presence of motion of the lack of motion as a condition, which reads upon the claimed invention).

Therefore, it would have been obvious to one of ordinary skill in the art at the invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe) for allowing for more efficient tracking of persons and activities [0004].

Pavlidis (modified by Monroe and Flickner) is silent in regards to the first color pixel distribution is pre-selected.

However, Gu teaches the pixel distributions are pre-selected (column 4 lines 11-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Gu with Pavlidis (modified by Monroe and Flickner) for providing efficient signal processing of color images.

Pavlidis (modified by Monroe, Flicker and Gu) is silent in regards to the color pixel distribution is pre-selected, <u>prior to the receiving the frame of the area</u>.

However, Parker discloses where in the present invention, the skin detection algorithm utilizes color image segmentation and a pre-determined skin distribution in a specific color space, as: P (skin.vertline.chrominace) [0045]. Therefore, since Parker discloses a predetermined skin distribution in a specific color space, it is clear to the examiner that the predetermined specific color space is prior to an image, which reads upon the claimed limitation.

Now taking the teachings of Pavlidis (modified by Monroe, Flicker, and Gu) now incorporating Parkers teaching of predetermined color space prior to image, now teaches claim 1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Parker with Palvidis (modified by Monroe, Flickner, and Gu) for providing improved image processing.

Regarding **claim 2**, Pavlidis (modified by Flickner, Gu and Parker) is silent in regards to the high-speed detection algorithm operates in a compressed image domain. However, Monroe teaches the high-speed detection algorithm operates in a compressed image domain (Monroe, [compressed digital images; page 4, paragraph [0028]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified with Flickner ,Gu, Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 3**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to the high speed detection algorithm operates in an uncompressed image domain.

However, Monroe teaches the high speed detection algorithm operates in an uncompressed image domain (Monroe, optionally compressed; page 16, paragraph [0212]) image domain.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner,Gu, and Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 4** Pavlidis (modified by Flickner, Gu, and Parker) as a whole further teach the high performance detection algorithm operates in an image pixel domain (Pavlidis, motion segmentation through a multi-normal representation at the pixel level, pg 1482, first column).

Regarding **claim 5**, Pavlidis (modified by Monroe, Flickner, Gu, Parker) as a whole further teach the high speed motion detection algorithm represents portions of images in grey scale pixels (Pavlidis, *V. Optical and System Design,* pg 1482).

Regarding **claim 6**, Pavlidis (modified by Monroe, Flickner, Gu, Parker) as a whole further teach the image are represented in grey scale when such portions are not high in color content (Pavlidis, *V. Optical and System Design,* pg 1482).

Regarding **claim 7**, Pavlidis (modified by Flickner, Gu, and Parker) as a whole further teach the selected portions of the images are low in color content (Pavlidis discloses the use of a dual channel camera system that uses a medium resolution color camera during the day, and a high resolution grey scale camera during the night, V. *Optical and System Design,* page 1482. Monroe discloses the ability to select areas of a selected scene for monitoring activity level paragraph [0044]).

Regarding **claim 8**, Pavlidis (modified by Flickner, Gu, and Parker) as a whole further teach the portions are based on an initial set up (Pavlidis. VI. Object Segmentation and Tracking, *Initialization,* pg. 1484, Monroe discloses defaulting and programmable modes; page 4, paragraph [0028]).

Regarding **claim 9**, Pavlidis (modified by Flickner ,Gu, and Parker) is silent in regards to wherein the selected portions are determined based on a real time assessment of dynamic change in the area. However, Monroe teaches wherein the selected portions are determined based on a real time assessment of dynamic change in the area (Monroe, [0045]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner ,Gu, and Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 10**, Pavlidis (modified by Flickner, Gu, and Parker)) is silent in regards to the threshold is predetermined. However, Monroe teaches wherein the threshold is predetermined (defined threshold would be indicative of motion; page 8 paragraph [0115]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner , Gu, and Paker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 11**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to the area is a predetermined area. However, Monroe discloses the area is a predetermined area (remote; page 8 paragraph [0108]) area.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner , Gu, and Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 12**, Pavlidis (modified by Flickner, Gu, and Parker) as a whole further teach the frames comprise pixels, and where such pixels are group in blocks of pixel, each block being represented as an average or median in the color domain (Pavlidis, pg 1485, first column).

Regarding **claim 13**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to the blocks of pixels are of different sizes. However, Monroe teaches wherein the blocks of pixels are of different sizes (decimation various numbers of pixels will effectively change the sizes of pixel blocks; page 9 paragraph [0118]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 14**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to the area requiring higher resolution to detect motion are represented by blocks of smaller number of pixels. However, Monroe teaches wherein portions of the area requiring resolution to detect motion are represented by blocks of smaller number of pixels (page 9, paragraph [0116] and fig. 2:21-24) Monroe discloses using the histogram to determine the degree of change, where pixels are grouped according the value of change.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner, Gu, and

Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 15**, Pavlidis (modified by Flickner, Gu, and Parker) is silent in regards to the number of pixels in the blocks is varied based on depth of field. However, Monroe teaches wherein the number of pixels in the block is varied based on depth of field (the degree of motion; page 9, paragraph [0121] and see fig. 3: 34).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner, Gu, and Parker) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 16**, Pavlidis teach a method of detecting motion in an area (DETER, a prototype urban surveillance system, *Introduction*, pg 1478), the method comprising: receiving frames of the area (DETER, *Introduction* pg. 1478 and Fig. 3 and 4); using a high speed motion detection algorithm to remove frames in which a threshold of motion is not detected; using a high performance motion detection algorithm on remaining frames to detect true motion from noise (Pavlidis, the connected component algorithm filters out blobs with area less than 27 pixel as noise VI. *C. Multiple Hypothesis Predictive Tracking,* pg. 1488), wherein the frames comprise pixel (motion segmentation though a multi-normal representation at the pixel level, pg 1482), and where such pixels are grouped in blocks of pixels, each block being represented as

a single average pixel (Jeffery's divergence measures pg 1485-1487); and initializing a

model of the area comprising multiple weighted distributions for each block of pixels

(mixture of Normals; Pavlidis, *III. Relevant Technical Work*, page 1481 and VI. Object

Segmentation and Tracking: *A. Initializing*, page 1485-1487).   Pavlidis is silent in

regards to using a high-speed motion detection algorithm to remove frames in which a

threshold amount of motion is not detected; wherein a plurality of the frames comprises

a selected portion of a frame with a first pixel color distribution associated with a first

block of pixels that does not represent any motion of interest; and wherein the high

speed motion detection algorithm is configured such that the first color pixel distribution

is pre-selected, prior to the receiving the frames of the area, as a function of the block of

pixels that does not represent any motion of interest; wherein the plurality of the frames

comprises a selected portion of a frame with the first pixel color distribution associated

with the first block of pixels; and wherein the high performance motion detection

algorithm operates on the frames, wherein the plurality of the frames comprises a

selected portion of a frame with the first pixel color distribution associated with the first

block of pixels and another portion of the frame with a second pixel color distribution

associated with a second block of pixels; and initializing a model of the area comprising

multiple weighted distributions for each block of pixels.

However, Monroe discloses using a high speed motion detection algorithm to

remove frames in which a threshold of motion is not detected (see page 4, paragraph

[0032], [0033]). Therefore it would have been obvious to one of ordinary skill in the art

at the time of the invention to combine the method of Pavlidis with the teaching of

Monroe for providing computational efficiency and minimizing the amount of data to be

transmitted without any loss of critical change data (Monroe, [0054]).

Pavlidis (modified by Monroe) as a whole is silent in regards to wherein a

plurality of the frames comprises a selected portion of a frame with a first pixel color

distribution that does not represent any motion of interest; wherein the plurality of the

frames comprises a selected portion of a frame with the first pixel color distribution and

wherein wherein the high performance motion detection algorithm operates on the

frames, wherein the plurality of the frames comprises a selected portion of a frame with

the first pixel color distribution associated with the first <u>block of pixels</u> and another

portion of the frame with a second pixel color distribution associated with a second

<u>block of pixels</u>; and initializing a model of the area comprising multiple weighted

distributions for each block of pixels.

However, Flickner teaches wherein a plurality of the frames comprises a selected

portion of a frame with a first pixel color distribution associated with a first <u>block of pixels</u>

that does not represent any motion of interest (Flickner teaches in the first stage, a

temporal median filter is applied to several seconds of video (typically 20-40 seconds) to

distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary

pixels" (pixels corresponding to stationary objects) by monitoring color and assuming

that a color that predominates at a given pixel over time is representative of the

background image, since any object corresponding to a foreground image is expected

to move in and out of the camera's view over time [0025]. Since Flickner discloses to

determine moving pixel from stationary pixels by monitoring color and to predominate at

a given time to be considered background, it is clear to the examiner that Flickner

teaches to have a portion of the frame that is stationary represented with a color

distribution associated with a lack of motion as a condition, which reads upon the

claimed limitation); a function of the block of pixels that does not represent any motion

of interest wherein the high performance motion detection algorithm operates on the

frames, wherein the plurality of the frames comprises a selected portion of a frame with

the first pixel color distribution associated with the first block of pixels and another

portion of the frame with a second pixel color distribution associated with a second

block of pixels (Flickner teaches in the first stage, a temporal median filter is applied to

several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels

corresponding to moving objects) from "stationary pixels" (pixels corresponding to

stationary objects) by monitoring color and assuming that a color that predominates at a

given pixel over time is representative of the background image, since any object

corresponding to a foreground image is expected to move in and out of the camera's

view over time [0025]. Further disclosed is that shopping carts themselves (and moving

inanimate objects generally) may be detected using color (step 140). The color of

shopping carts may be modeled using a single 3-D Gaussian distribution, with the pixel

of any foreground silhouette pixel that has a color similar to that distribution being

classified as a pixel belonging to a shopping cart, [0032]. Since Flickner discloses to

determine moving pixel from stationary pixels by monitoring color and to predominate at

a given time to be considered background, it is clear to the examiner that Flickner

teaches to have a portion of the frame that is stationary represented with a color

distribution, and distinguish objects using a 3-D Gaussian distribution, with the pixel of

any foreground silhouette pixel that a color similar to distribution, it is clear to the

examiner that Flickner discloses to represent foreground and background pixel in

different color distributions associated with the presence of motion of the lack of motion

as a condition, which reads upon the claimed invention).

Therefore, it would have been obvious to one of ordinary skill in the art at the

invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe) for

allowing for more efficient tracking of persons and activities [0004].

Pavlidis (modified by Monroe and Flickner) is silent in regards to the first color

pixel distribution is pre-selected.

However, Gu teaches the pixel distributions are pre-selected (column 4 lines 11-

16).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to incorporate the teachings of Gu with Pavlidis (modified by

Monroe and Flickner) for providing efficient signal processing of color images.

Pavlidis (modified by Monroe, Flicker and Gu) is silent in regards to the color

pixel distribution is pre-selected, prior to the receiving the frame of the area.

However, Parker discloses where in the present invention, the skin detection

algorithm utilizes color image segmentation and a pre-determined skin distribution in a

specific color space, as: P (skin.vertline.chrominace). Therefore, since Parker discloses

a predetermined skin distribution in a specific color space, it is clear to the examiner that

the predetermined specific color space is prior to an image, which reads upon the claimed limitation.

Now taking the teachings of Pavlidis (modified by Monroe, Flicker, and Gu) now incorporating Parkers teaching of predetermined color space prior to image, now teaches claim 1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Parker with Palvidis (modified by Monroe, Flickner, and Gu) for providing improved image processing.

Regarding **claim 17**, Pavlidis (modified by Flickner, Gu, Parker) is silent in regards to the frames comprise blocks of pixels, and wherein a number of weighted distributions per block is varied. However, Monroe discloses wherein the frames comprise blocks of pixels, and wherein a number of weighted distributions per block are varied (Monroe, continuous variable; page 9, paragraph [0121]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the method of Pavlidis (modified by Flickner and Gu) with the teaching of Monroe for providing computational efficiency and minimizing the amount of data to be transmitted without any loss of critical change data (Monroe, [0054]).

Regarding **claim 18**, Pavlidis (modified by Monroe, Flickner, Gu and Parker), further teaches the number of weighted distributions varies (Monroe, continuous variable; page 9, paragraph [0121]) between 1 and 5 (Pavlidis, see VI. Object Segmentation and Tracking, page 1485).

Regarding **claim 19**, (modified by Monroe, Flickner, Gu and Parker),, as a whole

further teach the number of weighted distributions is varied based on dynamics of

motions or expectations (Pavlidis, VI. Object Segmentation and Tracking, *Model Update*

When a Match is Found, pg. 1486-1487).

Regarding **claim 20**, (modified by Monroe, Flickner, Gu and Parker),), as a whole

further teach the model is based on N successive frames and the weight is based on a

count (Pavlidis, VI. Object segmentation and Tracking, *A. Initialization page* 1484-1485)

Regarding **claim 21**, see analysis and rejection of claim 16. Furthermore, a

predefined number of weighted distributions are selected for each block of pixels, and

wherein the weights are normalized as claimed are discussed in the combined teaching

of Monroe and Pavlidis (mixture of Normals; Pavlidis, *III.* Relevant Technical Work,

page 1481 and VI. Object Segmentation and Tracking: *A. Initializing,* page 1485).

Regarding **claim 22**, Pavlidis (modified by Flickner, Gu, and Parker), as a whole

further teach if pixels in a new frame match the model, the model weights and

distributions are updated (Pavlidis, VI. Object Segmentation and Tracking: *A. Initializing,*

page 1485).

Regarding **claim 23**, Pavlidis (modified by Flickner, Gu, and Parker), as a whole

further teach a (modified Jeffery's measure) is used to determine a match or non-match

in the distributions (Pavlidis; VI. Object Segmentation and Tracking, *B Segmentation of*

Moving Objects: The Matching Operation, page 1486).

Regarding **claim 24**, Pavlidis (modified by Flickner, Gu, and Parker), as a whole

further teach a predetermined number of frames have pixels or blocks that do not match

the model, the lowest weighted distributions of the pixels or blocks of a background are

removed from the model and replaced by ones derived from a foreground distribution

once a derived number of sequences is reached within the last N successive frames

(Pavlidis, VI. Object Segmentation and Tracking *B. Segmentation of Moving Objects:*

Model Update When a Match is Not Found; page 1487).

Regarding **claim 25**, Pavlidis (modified by Flickner, Gu, and Parker), is silent in

regards to the high speed motion detection algorithm operates in a compressed image

domain.

However, Monroe teaches wherein the high speed motion detection algorithm

operates in a compressed image domain (see Monroe, page 4, paragraph [0029]).

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to combine the method of Pavlidis (modified by Flickner ,Gu, and

Parker) with the teaching of Monroe for providing computational efficiency and

minimizing the amount of data to be transmitted without any loss of critical change data

(Monroe, [0054]).

Regarding **claim 26**, Pavlidis (modified by Flickner, Gu, and Parker), is silent in

regards to the high speed motion detection algorithm operates in an uncompressed

image domain.

However, Monroe teaches wherein the high speed motion detection algorithm

operates in an uncompressed image domain (in Monroe, the calculation of the

difference between two images is tabulated uncompressed or compressed, see page 4,

paragraph [0032], also page 16, paragraph 0212, optionally compressed).

Therefore it would have been obvious to one of ordinary skill in the art at the time

of the invention to combine the method of Pavlidis (modified by Flickner, Gu, and

Parker) with the teaching of Monroe for providing computational efficiency and

minimizing the amount of data to be transmitted without any loss of critical change data

(Monroe, [0054]).

Regarding **claim 28,** Pavlidis (modified by Flickner, Gu, and Parker), are silent in

regards to wherein the first color pixel distribution is pre- selected by an operator.

However, Gu teaches the first color pixel distribution is pre-selected by an

operator (fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time of the invention to incorporate the teachings of Gu with Pavlidis (modified by

Monroe, Flickner and Parker) for providing efficient signal processing of color images.

Regarding **claim 29,** Pavlidis (modified by Monroe, Flickner, Gu and Parker) is

silent in regard to The method of claim 1, wherein the first color pixel distribution is pre-

selected by an automated image contextual classifier.

However, Flickner teaches to distinguish "moving pixels" (pixels corresponding to

moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by

monitoring color and assuming that a color that predominates at a given pixel over time

is representative of the background image, since any object corresponding to a

foreground image is expected to move in and out of the camera's view over time [0025].

Since Flickner discloses to determine moving pixel from stationary pixels by monitoring

color and to predominate at a given time to be considered background, it is clear to the

examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution associated with a lack of motion as a condition, which reads upon the claimed limitation);

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe for allowing for more efficient tracking of persons and activities [0004].

Pavlidis (modified by Monroe and Flickner) is silent in regards to pre-select the color distributions.

However Gu teaches to pre-select the color distributions (column 4 line 11-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Gu with Pavlidis (modified by Monroe and Flickner) for providing efficient signal processing of color images.

Regarding **claim 30,** Pavlidis (modified by Monroe, Flickner, Gu, and Parker) is silent in regards to The method of claim 1, comprising analyzing the frame as a function of a resolution of a region of interest in the frame.

However, Flickner teaches analyzing the frame as a function of a resolution of a region of interest in the frame ([0025])

Therefore, it would have been obvious to one of ordinary skill in the art at the invention to incorporate the teachings of Flickner with Pavlidis (modified by Monroe and Gu) for allowing for more efficient tracking of persons and activities [0004].

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe et al., US-2003/0025599 in view of Pavlidis et al.: Urban Surveillance Systems, 2001 in

view of Flickner et al., US-2003/0107649 A1 and in further view of Gu et al., US-5,

874,988 and further in view of Parker et al., US-2003/0122942 A1.

Regarding **claim 27,** Monroe teaches A system for detecting motion in a

monitored area, the system comprising: means for receiving video images of the

monitored area; a fast video motion segmentation (VMS) module that rejects still

images that do not portray any motion (motion of the fan is not detected as motion, and

does not cause unnecessary transmission and storage of still image data, page 9 [0121,

and; a robust VMS module that detects motion of an object in the monitored area

(remote area; page 3 [0026]); and a resource management controller that initializes ,

controls, and adapts the fast and robust VMS modules; wherein the robust VMS module

(adaptive; page 9 [0123 and page 10 [0124. Monroe discloses that the system is

adaptive, thus necessitates a controller to initialize control, and adapt the system for

motion detection). Monroe is silent in regards to wherein a plurality of the frames

comprises a selected portion of a frame with a first pixel color distribution associated

with a first <u>block of pixels</u> that does not represent any motion of interest, and wherein

the high speed motion detection algorithm is configured such that the first color pixel

distribution is pre-selected<u>, prior to the receiving video images of the monitored area, as

a function of the block of pixels that does not represent any motion of interest,</u> ;and

wherein the plurality of the frames comprises a selected portion of a frame with the first

pixel color distribution associated with the first <u>block of pixels</u> <u>contextual information</u> and

another portion of the frame with a second pixel color distribution associated with a

second <u>block of pixels</u>.

However, However, Flickner teaches wherein a plurality of the frames comprises a selected portion of a frame with a first pixel color distribution associated with a first block of pixels that does not represent any motion of interest (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's view over time [0025]. Since Flickner discloses to determine moving pixel from stationary pixels by monitoring color and to predominate at a given time to be considered background, it is clear to the examiner that Flickner teaches to have a portion of the frame that is stationary represented with a color distribution associated with a lack of motion as a condition, which reads upon the claimed limitation); a function of the block of pixels that does not represent any motion of interest wherein the plurality of the frames comprises a selected portion of a frame with the first pixel color distribution and another portion of the frame with a second pixel color distribution (Flickner teaches in the first stage, a temporal median filter is applied to several seconds of video (typically 20-40 seconds) to distinguish "moving pixels" (pixels corresponding to moving objects) from "stationary pixels" (pixels corresponding to stationary objects) by monitoring color and assuming that a color that predominates at a given pixel over time is representative of the background image, since any object corresponding to a foreground image is expected to move in and out of the camera's

view over time [0025]. Further disclosed is that shopping carts themselves (and moving

inanimate objects generally) may be detected using color (step 140). The color of

shopping carts may be modeled using a single 3-D Gaussian distribution, with the pixel

of any foreground silhouette pixel that has a color similar to that distribution being

classified as a pixel belonging to a shopping cart, [0032]. Since Flickner discloses to

determine moving pixel from stationary pixels by monitoring color and to predominate at

a given time to be considered background, it is clear to the examiner that Flickner

teaches to have a portion of the frame that is stationary represented with a color

distribution, and distinguish objects using a 3-D Gaussian distribution, with the pixel of

any foreground silhouette pixel that a color similar to distribution, it is clear to the

examiner that Flickner discloses to represent foreground and background pixel in

different color distributions associated with the presence of motion of the lack of motion

as a condition, which reads upon the claimed invention).

Therefore, it would have been obvious to one of ordinary skill in the art at the

invention to incorporate the teachings of Flickner with Monroe for allowing for more

efficient tracking of persons and activities [0004].

Monroe (modified by Flickner) is silent in regards to the first color pixel distribution is

pre-selected.

However, Gu teaches the pixel distributions are pre-selected (column 4 lines 11-

16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Gu with Monroe (modified by Flickner) for providing efficient signal processing of color images.

Pavlidis (modified by Monroe, Flicker and Gu) is silent in regards to the color pixel distribution is pre-selected, <u>prior to the receiving the frame of the area</u>.

However, Parker discloses where in the present invention, the skin detection algorithm utilizes color image segmentation and a pre-determined skin distribution in a specific color space, as: P (skin.vertline.chrominace), [0045]. Therefore, since Parker discloses a predetermined skin distribution in a specific color space, it is clear to the examiner that the predetermined specific color space is prior to an image, which reads upon the claimed limitation.

Now taking the teachings of Pavlidis (modified by Monroe, Flicker, and Gu) now incorporating Parkers teaching of predetermined color space prior to image, now teaches claim 1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Parker with Palvidis (modified by Monroe, Flickner, and Gu) for providing improved image processing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA ROBERTS whose telephone number is

(571)270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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